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ABSTRACT

This overview of social research illustrates how the federal government increasingly relies on knowledge gained through research reports and studies for its planning and policy formation. The research reviews are grouped into five sections. The first section, the historical perspective, traces the increasing importance of the role of social scientists to provide knowledge to the federal government. The second section, basic studies, describes influential research directed toward equity, equality, and the need for change. Some areas involving such policy include compensatory education, desegregation, and the relationship between school and achievement. Evaluation and assessment studies are contained in the third section which traces the status and progress of American education. This section discusses evaluation studies of compensatory programs, higher education problems, and career education. Section four describes change oriented studies which advocate reform. Among these works advocating reform are those of James Byrant Conant and Jerome S. Bruner and recent studies directed at this issue by institutions which include Massachusetts State College System, California Commission for Reform of Intermediate Education, City University of New York, and USOE. The last section, general studies, investigates more efficient and beneficial ways to meet the great financial demands of government. (KC)

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RESEARCH STUDIES AND REPORTS: IMPLICATIONS FOR FEDERAL EDUCATION POLICY

BY

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D. Research Studies and Reports: Implications for Federal Policy

Gaining An Historical Perspective

Increasingly over the past few decades awareness of the need for planning has been accompanied by the recognition of the need for a closer relationship of knowledge to the formulation of social policy. The result has been the attempt to make research relevant to public policies and to further departmental interest through the development of cumulative knowledge. Federal policy and planning increasingly rely on knowledge gained through social research.

Historically, it has always been predicated that better knowledge produces better decisions, and better knowledge has been equated with social science. Early in the twentieth century, the reform movement was greatly aided by social science surveys of crime, corruption and poverty. During that time the place of social science in the Federal Government was largely influenced by certain forces including the growth of statistical agencies, and the effect of the Progressive Movement on social and administrative reform. It was the pressing demands for organized knowledge to facilitate emergency government during World War I which enhanced the role of social scientists--economists, psychologists, historians and geographers.

Throughout World Wars I and II psychological testing was used by the armed services. The late 1930's saw the use of sample survey techniques in the Department of Agriculture. During World War II opinion research was utilized in helping to bring about the design of acceptable labor-mobilization and food-rationing systems. Economics was found useful in national income reporting and in implementing the Employment Act of 1946. The

1930's saw great interest in social-indicators, i.e., socially significant statistical descriptive data about American society, gathered in time-series in order to show trends. The report of the Department of Health, Education, and Welfare, Toward a Social Report, A Bauer's Social Indicators and Indicators of Social Change by Eleanor B. Sheldon and Wilbert E. Moore are examples of social indicator information in the 1960's. These studies have provided valuable information on trends and predictions in several fields including business, social work, public health and education.

Federal policy in education was greatly influenced by the work of social scientists after the end of the second World War. Sociological studies showed that for the same level of talent, fewer persons of low socioeconomic status receive higher educational training than persons of high socioeconomic status. The loss of talent was the concern of many policy-makers and this led to remedial measures such as the expansion of State universities, the establishment of new scholarship and loan programs, and the creation of Federal programs such as Upward Bound and Talent Search. This is one example, whereby the research by sociologists in this area, has helped to bring about national concern by describing the situation in such a way that effective action could be taken.

Another major action that was taken as a result of social research was the War on Poverty Program of the 1960's of which Head Start was the archetype. The concepts which undergirded the Head Start Program were based on the thinking of scholars in the area of child development whose research findings suggested a strong potential for training in early childhood. Two major

works gave impetus to the program: Benjamin Bloom's study Stability and Change in Human Characteristics (1964) and J. McVicker Hunt's book Intelligence and Experience. One of the central findings of Bloom's study was that for selected characteristics there is a negatively accelerated curve of development which reaches its midpoint before age 5. His reasoning that the environment would have its greatest effect on a characteristic during the period of its most rapid development, meant much for Federal policy in education.

Federal educational policy has been inextricably intertwined with Federal policy for social science directly or indirectly. Education is sometimes considered one of the social sciences and it is also generally agreed that research in the social as well as the behavioral sciences has often benefited education. Two reports in 1969 urged greater use of social science data in the formulation of policy: The Behavioral and Social Sciences: Outlook and Needs by the National Academy of Sciences, and Knowledge Into Action by the National Science Foundation. The latter report stressed the need for fully utilizing the best of social science knowledge and skills in the formation, evaluation and execution of policies for achieving desired goals. The former report recommended that there be an annual increase of 12 to 18 per cent in the funds available from the Federal Government for the support of basic research in the behavioral and social sciences.

Basic Studies

The findings of many basic studies have from time to time influenced Federal educational policy as it is directed toward assuring equity and equality, and as it tries to respond to the need for change. Some areas involving

such policy include compensatory education, desegregation, the relationship between schooling and achievement and school finance.

To date, the largest Federal commitment to education is to compensatory education, a concept which was originally linked to that of cultural deprivation. The body of propositions relating to the two rested on a large amount of sociological and psychological research. Studies conducted by D.P. Asubel, T. Pettigrew and M. Deutsch in the 1960's yielded important findings on cultural deprivation and intelligence which provided some rationale for Federal compensatory education programs.

It is important to note, however, that the de-emphasis on the "melting pot" idea and the new emphasis on "cultural pluralism" will have some effect on the approach to compensatory education. In 1973 the Far West Laboratory for Educational Research and Development published a book Beyond Compensatory Education which dealt with this issue and which suggested that the time has come for a new approach to the concept of compensatory education. The new view is also upheld in Cultural Pluralism in Education by Madelon D. Steut et al, (1973). Perhaps in the wake of the new emphasis on "cultural pluralism", the Federal Government will need to find new and more meaningful intervention strategies.

In 1964 Martin Deutsch's study, The Role of Social Class in Language Development and Cognition examined language and cognitive variables on a sample of 292 white and Negro children in first and fifth grades. Relationships between socio-economic status (SES), race, grade, and language variables were studied. Deutsche's findings revealed significant correlations with

race that were less frequent for the first-graders than for the fifth-graders. The number of significant comparisons on SES for each grade level was constant. On early social environment the data indicated that preschool, kindergarten or day-care experiences or a combination of these was associated with higher group intelligence scores. In general the studies indicated that educational advantage and disadvantage are transmitted in the first four years of the child's life, via the family. Cognitive growth is more rapid in the first four years than in any later period, and as the child grows older it becomes more difficult and expensive to compensate for the deficiencies of that period.

Another momentous issue is that of desegregation, the roots of which lie in part in the volume of sociological evidence that was prepared by social scientists working with the NAACP legal staff in the 1950's. The decision in the Brown case of 1954, though a legal matter, was in part prompted by the volume of social science evidence which sought to establish the fact that segregated schooling was sociologically and psychologically injurious to Negro children. Perhaps for the first time, social science evidence had gained some kind of legal acceptance. By 1964, through the Civil Rights Act, the Federal Government expressed great willingness to use social science findings in the formulation of policies dealing with the problem of segregation. The Civil Rights Act of 1964 directed the Commissioner of Education to survey inequalities of educational opportunities for major racial, ethnic and religious groups in the United States. James S. Coleman was asked to direct a national survey of public elementary and secondary schools.

The Coleman study, Equality of Educational Opportunity, was a major effort to investigate, not only the distribution of school inputs among various racial and ethnic groups, but also the impact of such resources on school achievement. The study was clearly aimed at important policy issues involving the extent to which an increase in investment would yield an increase in school achievement. The central finding was that schools have influence on a child's achievement that is independent of his background and general social context. The report was criticized mainly from the standpoint of methodology. One criticism was that the data gathered was cross-sectional, that is, it was collected from students of different grade levels at one point in time, instead of from the same students over a period of time. However, the information provided by the report, was very useful to USOE policy-makers in the development of procedures for school desegregation.

The impact of school desegregation on the achievement of minority students was bound, sooner or later, to be of concern to Federal educational policy-makers. In the middle 1960's studies by Irwin Katz and Thomas Pettigrew held out little hope for greatly improved academic achievement by minority students in desegregated schools. Katz's Review of Evidence Relating to Effects of Desegregation on the Intellectual Performance of Negroes (1964), while admitting that much of the evidence was only inferential reported instances of low scholastic motivation and achievement. Pettigrew sounded a similar note in his 1964 study, Social Psychological Considerations of Racially-Balanced Schools: "the desegre-

gated learning situation, then, has the potentiality of lowering or raising Negro performance depending importantly on the social context of threat or acceptance that is received." Nor has the situation been greatly relieved by more recent studies such as those conducted by the National Opinion Research Center (NORC) at the University of Chicago.

The NORC study, An Evaluation of the Effects of the Emergency School Assistance Program and of School Desegregation was prepared for USOE in 1973. The report indicated that most groups do well in schools that are 41 to 70 percent white. The findings also revealed that Blacks who go to school with high status whites have higher achievement than those who go to school with whites from low SES families. On the whole, however, the study reported that the percentage of variance explained by the racial composition of the school was not large enough to guarantee the position that sending Blacks and whites to school together will instantly raise achievement by a grade level. A fairly equal split between races tended to produce the best results.

Another major study which provided valuable information for Federal policymakers was that of Daniel P. Moynihan, The Negro Family: The Case For National Action (1965). Moynihan showed that low education levels produce low income levels in a vicious cycle detrimental to Blacks. The report became the basis of President Johnson's speech at Howard University in June, 1965. Though much criticized, it signalled the expanding scope and usefulness of social science research in government.

The U. S. Commission on Civil Rights sponsored several studies which have had great impact on the development of policy in helping to foster equality of educational opportunity. Among these are Racial Isolation in the Schools (1967), The Mexican-American Education Study (1971) and A Better Chance to Learn (1975). In general the studies identify language difficulty, unfavorable home condition, poor attendance, lack of understanding between home and school, inefficiency of school system and lack of incentives as the principal causes of failure. Comparisons of achievement of whites and minorities are provided. The Findings in A Better Chance to Learn revealed that on tests of general information-including humanities, social sciences and natural sciences-the median 12th grade score was 43.3 for Mexican Americans, 41.7 for Puerto Ricans, 44.7 for Native Americans and 49.0 for Asian Americans as compared to a median score of 52.2 for whites. The studies have aided Federal policy-makers in the development of educational programs for these groups. They have also influenced the passage of important legislation aimed at preventing group isolation and improving educational achievement.

The study reported in 1975 by Charles E. Bidwell and John D. Kasarda at the University of Chicago on School District Organization and Student Achievement may have some implications for Federal policy in education. Data from 104 school districts in Colorado were utilized in order to examine the determinants of organizational effectiveness. The results indicate that emphasis on teacher qualifications had a more positive effect on student achievement than emphasis on pupil-teacher ratio or administrative efficiency. The study further shows that resources have important in-

direct effects on achievement via their direct effects on school district structure and staff qualifications.

The question of the relationship between schooling and achievement remains a difficult one. Policy-makers have from time to time pondered the evidence produced by such studies as those of Coleman and Jencks which, like the Plowden Report in Great Britain, do suggest that some major reappraisal of the organization and structure of the education system, along with the mechanism for the allocation of resources, may well deserve further study and consideration. It is for this reason that the findings of the Educational Policy and Assessment Study (1975) is of some importance. The study tends to reinforce the findings of the Coleman and Plowden Reports which suggest that there is no close relationship between achievement and any of the variables over which administrators have direct control, including the school organizational program, training of teachers or class size. However, the study hints that more attention needs to be paid to certain qualitative variables within the school including teacher student relationship which might effect the school's role in student achievement. All this brings into serious question the role of the school and what can be accomplished through education. Arthur and Linda Whimbey's recent study, Intelligence Can Be Taught, indirectly addresses this question.

In their study the Whimbey's take a stand different from that of Jensen whose study of race and intelligence emphasized genetic factors in the general intelligence of Black students. The Whimbey study stresses environmental factors, noting specifically, that intelligence is a learned

skill. The authors conclude that if pedagogical methods can be employed to help students find a productive role in our literate-technical culture, then genetic differences become secondary. This view of intelligence obviously places a heavier burden on the school and highlights the need for closer examination of its role.

Emphasis on quantity of schooling as an important determinant of achievement has become the concern of social scientists. The study by David Wiley, Another Hour, Another Day (1973) gives special consideration to this issue. One of the findings is that an additional half-hour in the school day (10% more from a basis of 5 hours) increases verbal ability and mathematics achievement by about 14 percent and reading comprehension by about 27 percent. Hence the author concludes that schooling and achievement need to be viewed as quantitative phenomena and that primary concern should be with the measurement of quantity of schooling, quantity of outcome and the relation between the two.

Another important aspect of Wiley's study brings the question of school resources forcefully into the picture. School facilities and curriculum, in addition to student body characteristics, helped to explain the larger effect of the intensity of schooling. Since school facilities constitute part of educational resources the question of school finance is implied.

The factor of educational resources was prominent in the Study of Our Nation's Schools (1972), which was one of four significant school outcome studies conducted by USOE. In addition to the kinds of students the school

gets, the study identified a comprehensive set of 31 school variables, which fall within the broad categories of facilities, pupil programs and policies, and school personnel and personnel expenditure and which contribute to the influence of the school. On the basis of these comprehensive set of 31 school variables, the study concludes that most of the school outcome measures become increasingly more predictable the longer the student stays in school.

Three other studies of USOE, which have contributed to the broadening of the analysis of school outcomes are A Study of the Achievement of Our Nation's Students (1973), A Study of the Attitude Toward Life of Our Nation's Students (1973), and Special Studies of Our Nation's Students (1975). Among the findings of the latter are (1) the achievement of minority students shows a greater sensitivity to school factors than does that of whites and (2) the achievement of students in the South tends to show a greater sensitivity to school factors than does that of students in other regions. In general the studies found that the role of family factors in achievement exceeds that of the school.

Evaluation and Assessment Studies

Assessing the Status and Progress of Education

The congressionally-mandated study on The Condition of Education (1976) provides a comprehensive analytic discussion of the results of schooling in America, drawn mostly from the National Assessment of Educational Progress (NAEP) project. The NAEP project is helping both Federal and State officials monitor the educational effects of schooling and instruction.

A second NCES annual publication, Projections of Education Statistics to 1984-85, provides statistical information on earned degrees, teachers, expenditures of educational institutions, and student fees charged by institutions of higher education. The most dramatic predictions of Projections of Education Statistics are associated with spiralling costs, declining enrollments, and changes in the characteristics of student and teaching populations. While these projections are limited to various quantitative aspects of enrollment and finance, they help educators to appreciate the need for reforming institutional arrangements to bring about increases in productivity and consumer satisfaction.

Other reports which yield important data on the status and progress of American education include the Digest of Educational Statistics, NCES, the Progress of Education in the United States, published biannually by the Division of International Education, USOE, and the Bureau of the Census 1974 report, Educational Attainment in the United States, March 1973 and 1974, Population Characteristics. The latter contains valuable data on the years of schooling completed by persons who were 14 years or

older in March 1974. The survey results for 1974 are presented in historical perspective and the trends are analyzed. The report also examines the relationship between occupations and educational attainment, the trends in college attendance, and the relationship between age and educational attainment. One significant conclusion of the report is that most males and whites are staying in school longer than their parents, and that the annual percentage increase of Blacks receiving high school diplomas (4%) is greater than the increase for whites (2%). This observation is encouraging to Federal efforts toward equality of educational opportunity.

Equity and Equality Issues

Over the past few years several studies evaluating the effectiveness of compensatory programs have been sponsored by the various agencies of the Education Division. The Annual Evaluation Report on Programs Administered by the U.S. Office of Education FY 1975 presents detailed information on the findings of evaluation studies pertinent to program effectiveness and program improvement as well as information on OE programs. The findings of these studies are beginning to influence legislative, budget, and program management decisions. Among these are the Educational Testing Service Study of Compensatory Reading Programs (1976) the Systems Development Corporation evaluation of ESAA Program (1975) and the RMC Corporation analysis and synthesis of recent State Title I reports (1976). These studies have shown that compensatory education is beginning to have a positive impact on the development of the basic skills of disadvantaged children.

Measuring the overall impact of compensatory-education programs has increasingly become a concern among Congressional officials. The Annual Evaluation Report

indicates that participants in Title I reading projects are achieving significantly higher than comparable groups of students not receiving the Title I benefits. However, results suggest that despite some overall gains from compensatory reading projects during the school year, the target children are still far below average. Probably the most significant development in the improvement of compensatory education programs has resulted from studies relating to OE's "Packaging and Dissemination" effort which involves the identification, validation and replication of successful projects--particularly those directed at low-achieving students.

Other studies such as the OE sponsored Summary of the Report of Final Evaluation, ESEA Title I Projects (1974), which have attempted to measure the overall impact of Title I's almost $2 billion expenditures, have revealed an increasing number of compensatory education projects which have contributed to appreciable gains in student performance in reading and mathematics. Other studies have identified a number of effective projects in bilingual education. As additional compensatory education and bilingual projects are identified and considered worthy of replication, dissemination efforts will be expanded through the "Packaging and Dissemination" Program and through the National Diffusion Network, both supported by OE.

Over the next few years, the results of these studies, including the results of Follow-Through evaluations, will be shared with States and local officials who will assume the principle burden of installing the newly tested programs. The discovery of both positive and negative findings, in studies such as The Effectiveness of Secondary and Higher Education Intervention Programs are quite important in further dissemination effort.

Analysis of the relative benefits to children of various combinations of educational resources and practices remain a major focus of attention in FY 1978 evaluation plans of USOE and research agenda of NIE. A major policy research center at Stanford Research Institute is giving primary attention to the educational needs of disadvantaged children. In 1974, SRI concluded a study of the Use of Performance Criteria to Allocate Compensatory Education Funds for the Office of the Assistant Secretary for Education. This two-part study first assessed the consequences of Federal compensatory funds targeted toward elementary students showing low achievement. The study then presented the resource redistribution consequences of the use of performance criteria. One of the findings was that variations in curriculum across States and to a lesser extent, among school districts within a State, raise complex questions regarding the practicality and meaning of any national measure of educational disadvantagement at a given grade level. The study also found that within States, funds would often not be allocated in the most effective manner.

The objective of another recent SRI study, Compensatory Education and Early Adolescence: Reviewing our National Strategy (1975), was to determine the possible implications for Federal policy of continuous compensatory education. The findings of the report contradict the view that treatment in preschool and primary grades makes unnecessary special attention in later years. The report states that for a variety of reasons, many youngsters either do not attend or do not benefit from early programs. Even those who do well in early programs frequently regress to previous levels by the time they enter junior high school. It is therefore argued that a new Federal strategy is required that will provide disadvantaged students of various age-groups with appropriate compensatory education throughout their school career.

Still another report issued recently by the SRI educational policy research center indicated that the incidence of handicapping conditions is not evenly distributed between elementary and secondary school populations or uniformly distributed across socioeconomic and demographic variables. For example, incidence among Black students was 3-5 times that of whites relative to their proportion to the total school population. The educational policy center will continue to analyze the needs and costs associated with handicapping conditions during FY 1976 and FY 1977.

Useful program guidelines are provided by studies such as Seymour Holzman's Compensatory Education: What works to help disadvantaged students (1973). In that study he noted the eight common characteristics of successful programs including systematic planning and clear objectives. Edward Gordon's 1972 comprehensive study, Preparation of Publications on Progress in Compensatory Education and Desegregation Programs, should also be noted. Gordon not only described selected successful programs such as the "Special Reading Program" in New York and the "Project Success" in Atlanta, Georgia, but also the less exemplary projects such as the "Reading Centers" in Florida and the "Neighborhood Educational Centers" in Detroit, Michigan.

Satisfying the special educational needs of children with limited English-speaking ability was mandated by Congress in the Education Amendments of 1974. A study by Development Associates, A Process Evaluation of Bilingual Education Programs (1973) found that two major problem areas in bilingual education are a severe shortage of trained teachers and a perception at the project level of a lack adequate bilingual curricular materials. These findings have had a major impact on the "capacity building" strategy in the Federal

bilingual program through increased emphasis on staff development and training and on development of curricular materials. The proposed budgets in bilingual education reflect this thrust in the increased allocations for these two categories of activities.

Another study of exemplary bilingual education projects has revealed evidence of the positive impact of four such projects on children. The Federal ESEA Title VII office is disseminating information about these four projects, and detailed how-to-do-it Project Information Packages (PIPS) are being developed for each project. The packages will be made available to school districts that want to start bilingual projects, or to modify existing projects. The provision of such "models" of bilingual education is directly responsive to new requirements in the Education Amendments of 1974.

One of the principal concerns of the Education Amendments of 1974 is equal access for minority groups to postsecondary education. Two major studies completed in 1974 by the Ford Foundation and the National Science Foundation should have implications for Federal policy. The Ford Foundation study, Minority Enrollment and Representation surveyed minority student enrollment in Colleges, Universities, Graduate and Professional Schools in 50 States and the District of Columbia. The study noted that Blacks and Spanish-surnamed Americans are the two most disadvantaged groups in higher education, generally having both lower incomes and larger families than whites. Consequently, the report suggests that any estimate of the amount of money available to finance higher education must include consideration of the relative income per member of the household.

The National Science Foundation study, Evaluation of Policy Related Research on Post Secondary Education for the Disadvantaged, revealed that research has been consistent in identifying lack of basic academic skills and poor study habits as the most powerful limitation to universal access, achievement and persistence. These factors are intensified by negative socio-economic forces. The situation is aggravated by the lack of both resources and trained personnel at postsecondary institutions to deal with high-academic-risk students. The report recommended a Federally-sponsored, nationally-integrated competency-based developmental skills program at all levels of education.

Concern for the effectiveness of Federally-sponsored programs grew with changing concepts and definitions of poverty. The 1976 Department of Health, Education, and Welfare Report to the Congress on The Measure of Poverty is indicative of that concern. The report points out that the current allocation assumes that the distribution of poor children by State is the same today as it was in 1970, which is unlikely. Changing the poverty definition and updating the poverty count could mean reduction in funds for populous States, like New York and California, if the poverty line is increased by 125 percent or 150 percent. A lower poverty threshold, however, would result in a gain in funds for the largest States at the expense of the Southern States.

In March 1971, the Department of Health, Education and Welfare published Report on Higher Education to assess how well postsecondary education was meeting the needs of the American society in the 1970's. The central

problem was that the dedication of American higher education to social equity and individual opportunity has resulted in increased enrollments and greater demands that ever before.

Another study which identified problems in higher education access was The Report on Higher Education: The Federal Role. Graduate Education, U.S. Office of Education, 1973. This report dealt substantively with the dimensions and causes of the initial imbalances of oversupply and under-employment bruught on by dramatic increases in college enrollments, and the Federal Government's influence in correcting or sustaining them. In his 1970 study, Institutions in Transition, Harold Hodgkinson also drew attention to these problems in his discussion of openness of institutions resulting from the heterogeneity of ethnic composition of the student body. Other studies such as Lewis Mayhew's Graduate and Professional Education, 1980 (published in 1970), and More than Survival, (1975) a study of the Carnegie Foundation for the Advancement of Teaching, deal with these problems and their implications for future Federal policy in education.

National Policy and Higher Education, a 1973 Report of a Special Task Force to the Secretary of Health, Education, and Welfare also gave attention to the problems brought on by greater opportunities of access to higher education. This report discusses some of the problems and myths surrounding college-going and upward mobility for minorities. The relationship between a college degree and high income comes into question, and the report warns that such a relationship can be easily exaggerated. The report touched upon the need for a shift in Federal programs from concern for expanding access to support of experimentation and innovation. Federal support for new institutions

is also emphasized in the 1971 study of the Carnegie Commission on Higher Education, New Students and New Places, and the 1974 report of the National Board on Graduate Education, Federal Policy Alternatives Toward Graduate Education.

Education and Work

Under the sponsorship of the National Institute of Education, the American Institutes for Research is currently revising a series of career education units for national field testing. The units are part of the Comprehensive Career Education Model (CCEM) materials that were originally developed for a vocational education project at Ohio State University. The purpose of the CCEM is to provide the knowledge and skills that will enable students to fulfill their personal goals and needs through successful career pursuits. The purpose of field testing is to obtain information about the teachability and effectiveness of the CCEM materials.

NIE is also sponsoring a major career education evaluation project--Experienced-based Career Education. The $12 million program is designed to help bridge the gap between study and experience, between the classroom and the community. EBCE differs from traditional work/education programs in several major ways. It does not emphasize vocational skills per se as in work-study and cooperative education programs operating in a vocational framework. It is also distinguishable by its use of experimental techniques to cover learning in academic subjects, and career exploration and employer-site rotation as opposed to simple work experience. EBCE also differs from contemporary non-traditional experimental high school alternative programs (for example

"schools without walls" and "action learning") in its much greater emphasis on career development as well as in its systematic integration of career, personal and academic skills into a program of total learning utilizing a range of community resources and people.

Another national report on career education (Project Baseline) was issued by the National Advisory Council on Vocational Education in December 1975. The report was encouraging in some respects and somewhat discouraging in other respects. After discounting for inflationary effects, the nation's investment in vocational education in 1974 was greater than in any previous year. The number of full-time equivalent vocational education teachers in 1973-74 increased 9 percent at the secondary level and 15 percent at the postsecondary level. In neither case, however, was the increase adequate since the enrollment growth exceeded the additional supply of teachers. The report warns that "the future looks even worse." The report also showed that expenditures for disadvantaged and handicapped persons dropped in 1974. Among the recommendations were better coordination--including Federal support--between vocational education and manpower training and greater equalization of opportunity to receive vocational education.

The Career Intern Program initiated by Opportunities Industrialization Centers of America, Inc. first received support for development and evaluation from the Office of Education in 1972 and later from the National Institute of Education. The purpose of the program is to provide opportunities for students having difficulty in the public schools to achieve their career aspirations through a combination of career and academic learning

experience. The Career Intern Program represents one of the first efforts to create an alternative school focused on the career education needs of youth. The program merges academic and career preparation, emphasizes career exploration, and provides in-depth knowledge of how the economic system operates.

Longitudinal studies such as Policy Issues and Analytical Problems in Evaluating Voational Education by Ernst Stromsdofer have revealed that there are immediate benefits to be derived from vocational training. It should be noted that a study by John Grasso completed in 1975 at the Ohio State University has been somewhat critical of the Stromsdofer study. Grasso's study, "Contribution of Vocational Education, Training and Work Experience to Early Career Achievement of Young Men," does not reveal a great deal of difference in the success of those students who had vocational training soon after high school, over those who continued in general education programs. However, it seems generally accepted that specialized training helps students to find jobs.

The American Institutes for Research has just completed a survey and assessment of the status of career education in the public schools during 1974-75 for the Office of Education. Included among the broad objectives of the study were answers to the questions (1) how much was happening? (2) which activities were most prevalent? and (3) what roles were played by individuals in the school district? Results indicated that among the career learning outcomes, the one clearly perceived as the most important was the teaching of basic skills. The percentage of students going on to further education

including four-year colleges and universities, as well as going on to full employment was positively correlated with local levels of career education activity. The need for staff development was perceived as the most important way in which Federal assistance could be used.

E. Important Oriented Change (Institutional Change and Reform)

Change-Oriented Studies

One of the major challenges to future efforts of Federal policy-makers has stemmed from the often negative and critical appraisals of schools which characterized both the professional literature and the popular press in the 1960's. Among the works advocating reform were those of James Byrant Conant and J.S. Bruner. In 1959 Conant in The American High School Today recommended that among other things, students should not be given a rank in class according to their grades in all subjects.

In 1960, Bruner, in The Process of Education suggested that any subject can be taught effectively in some intellectually honest form to any child at any stage of development. It was perhaps inevitable, therefore, that by the early 1970's educators, parents and students who had become dissatisfied with the system, attempted to conceptualize and develop educational alternatives.

In the quest for alternatives a variety of rationales, assumptions, methods and goals have often been proposed. During the past decade scholars and critics have concentrated on three categories which represent the various approaches to alternatives: (1) relevance or educational responsiveness to human needs and problems; (2) efficiency or fiscal responsibility; and (3) equality or equal opportunity to gain access to the resources of society as well as to participate in decision making. Federal policy-make have interest in these categories and in the research studies which address such issues.

I. Relevance

Generally, educational relevance theme is best represented by the use of terms such as "free school," "open education" "new school," or "informal education,"

which suggest a less structured type of school with a more individually oriented learning environment. Several recent studies have been directed at this issue, including Two Planning Studies on Open Learning by the Massachusetts State College System (1974). It was found that the open learning network should recognize and legitimize educational activities in non-degree-granting institutions and programs by providing means of certifying some of the existing programs for credit. The Report of the California Commission for Reform of Intermediate and Secondary Education (1975) made similar recommendations noting specifically that each learner should be recognized and accepted as the principal client of the school.

In 1975, the City University of New York published the results of its study of Student Retention and Graduation: Fall 1970 to Spring 1974. The findings on these students of the first open admissions class revealed that of those entering the senior colleges 21.4 percent received Bachelor's degrees. Graduation and retention were related to student's high school average: students with higher average were more likely to have graduated. Graduation and retention were positively associated with the median family income in which the students resided. Compared to a national sample from four year public colleges, the graduation rates for the 1970 cuny senior college freshmen were lower, although the cuny retention rates were higher.

The main principle underlying the relevance idea is the individualization of experiences by making them more meaningful to particular individuals or populations or to the resolution of a particular problem. Note should, therefore, be taken of the USOE study Individualizing Instruction: Placing Learning

Ahead of Teaching (1974). The study emphasized the importance of classroom organization in an open space setting, team teaching, one-to-one instruction, individual work at learning stations, and self-directed activity by the student. ~~Another USOE study, Assessment of a Self-Instructional~~.

Some of the problems attending open education and which the Federal Government will be faced with are dealt with by Mario D. Fantini in his book Public Schools of Choice (1973). The author raised questions as to whether alternative schools would not work against racial desegregation, since minorities are insisting on their own type of education to meet their specific needs. He also indicated that public schools of choice would also carry implications for private schools, and teacher preparation to meet the needs of the various schools.

Conversion Model for Elementary Schools (1973) revealed that the individualized methods had helped in presenting some new skills and new information to children with special interests in certain subjects. However, the audio tutorial lessons proved expensive in terms of production hours in relation to instructional time.

The problem of individualized instruction is crucial to Federal programs in education. The National Institute of Education is conducting a study of Compensatory Education in accordance with the Education Amendments of 1974. Special attention is devoted to examining the relative effectiveness of "standardized" versus "individualized programs." The Institute's final report on the study design for A Study of the Effectiveness of Individualized Instruction in the Teaching of Reading and Mathematics was completed in 1975. The report discussed individualized instruction in terms of the extent to which the educational program is oriented towards the particular and unique character-

istics of each student within that program or classroom. The primary concern of this research is the effect of individualized versus standardized compensatory instruction outcomes, i.e., achievement in mathematics, reading and other non-cognitive factors or classroom environment.

If relevance, based on need, is associated with individualized instruction, in a broader sense it encompasses the concept of career or vocational education. During the early years of the twentieth century, vocational education developed as a response to social and economic need. The Vocational Education Act of 1963 and subsequent Amendments are indicative of Federal commitment to aid the development of vocational education. Current studies are designed to explore various ways and means of narrowing the gulf between education and work. In 1975, NIE reported on a State level study in career education, Bridging the Gap: A Study of Education-to-Work Linkages. The key concept in the report is that of linking educational systems to occupation systems, that is connecting schools to places of employment. The study reports successful linkages in several States including California.

In 1973 the California State University and Colleges published an outstanding report giving the views of the Advisory Committee on Career Education. The findings revealed that CSUC was conferring about 60 percent of its Bachelor's degrees and about 85 percent of its Master's degrees in occupational fields such as business administration, teaching, engineering and the health professions. The report finds historic justification for career education both outside and inside CSUC. A similar report of ~~or~~ a Career Development Project also published in 1973 stated that counselling was very effective in helping students to achieve success in the pursuit of career education and academic core subjects.

Some General Studies

A principal concern of Federal policy-makers is the enormous financial investment in education as it relates to both diminishing economic resources and learning outcomes in students. In view of the present demand for available funding for education, intensified by increased population growth, and thus increased demand for schooling accompanied by higher teacher salaries, building costs and other supplies and material expenses, alternatives must be found which will be less expensive, more efficient and more beneficial to individuals and to society. Some contemplated changes for meeting these new demands by increasing efficiency include computer-assisted instruction, self-instructional curricular packages, educational vouchers, administrative reorganization and educational technology.

In 1975 the Federation of Rocky Mountain States, Inc. completed the NIE sponsored study on Technological Innovation and Educational Practice.

The study commonly known as the Satellite Technological Innovation, was based on the premise that widescale distributqon of instructional television beamed by a communication satellite is an alternative way of achieving instructional goals. In the 1960's several studies including Social Learning and Personality Development by A. Bandura and R.H. Walters revealed the impact of television on learning and behavior. From their findings Bandura and Walters concluded that by observing others on television, a child may be affected in three ways - he may acquire new responses; already acquired responses may be inhibited or disinhibited; and he may be led to perform previously learned responses similar to those observed.

The Office of Child Development, HEW, also completed A Naturalisitc Study of the Effects of Prosocial Television and Environmental Variables on the Behavior of Young Children in 1975. The subjects were children enrolled in Head Start Programs. Prosocial television produced few behavioral differences from the neutral treatment, but the effects of prosocial television accompanied by relevant play materials varied with classroom structure. The study indicates the usefulness of prosocial television and related curriculum materials in day care and educational programs for young children of the economically disadvantaged. Innovations such as these need further development, however, if Federal efforts to promote them are to succeed. In its report on Federal Programs Supporting Educational Change, (1975) prepared for the Office of Education, the Rand Corporation pointed out that innovative ideas and technologies tried thus far are inadequate or underdeveloped, and that more R&D is needed.

The Rand change agent study focused on four Federal programs (ESEA Title III: ESEA Title VII; Vocational Education, 1968 Amendments, Part 1); and Right-to-Read) aimed at promoting educational change in the public schools by paying for the costs of innovative projects for a trial period. An analysis of educational alternatives ranging from open education to computer assisted instruction revealed that other things being equal, approaches such as classroom organization changes or school administrative changes explained very little of the variation in implementation outcomes. Federal project evaluators need to take seriously into account the fact that the predictors of effective

implementation are likely to lie in those project characteristics promoting or inhibiting adaptation to the institutional setting. Project outcomes depended less on inputs from outside and more on implementation strategy and other internal factors. Similar observations have been made in the Head Start Planned Variation Study.

The main objective of the Head Start Planned Variation Study, an experimental program initiated in 1969, was to determine which of several early childhood curricula have the greatest effect on Head Start Children. The catalyst was report of the Westinghouse-Ohio study (1969) which found no differences in any measure at any grade between summer Head Start participants and non-participants and recommended HSPV. The Brookings Institution's 1975 publication Planned Variation in Education: Should We Give Up Or Try Harder? presents both sides of the issues. It points out that on the one hand no consistent pattern of differences in effectiveness emerged from the sponsored treatments. On the other hand some sponsored treatments ~~with~~ whose models had structured classroom techniques focusing on cognitive development ~~did sometimes perform better~~ were at times more effective than others. Similar conclusions were arrived at from the preliminary findings of Follow Through.

In 1967 President Johnson initiated the Follow Through Program to build on Head-start gains by providing continuing help to Head Start children as they entered regular school. The preliminary results produced some evidence that Follow Through children out-performed others on some measures, but such results did not indicate that any one model was emerging as clearly superior to the others. The results, did suggest, however, that models with differing emphases produce differing results - models that emphasize acquisition of particular cognitive

skills appeared to deliver higher scores on tests reflecting these skills. These factors embrace the question of efficacy of educational programs not only at pre-school and elementary level, but also at secondary education level.

Since 1972, five major reports on the American high school and related institutions engaged in educating the youth have had implications for Federal policy in education. They are (1) Kettering Commission Report, The Reform of Secondary Education: A Report of to the Public and the Profession (1973), by the National Commission on the Reform of Secondary Education, B. Frank Brown, Chairman; (2) Youth: Transition to Adulthood (1974) by the Panel on Youth of the President's Science Advisory Committee; (3) Report of the National Panel on High Schools and Adolescent Education, (1974) USOE, John Henry Martin, Chairman; (4) American Youth in the mid-seventies (1972) by the NASSP National Committee on Secondary Education; and (5) The Greening of the High School (1973) by Ruth Weinstock (ed.). (Education Facilities Lab.).

The Kettering Commission Report pointed to the significance of the statistics which ~~showed the~~ projected the decline of more than two million high school students between 1973 and 1984. A decline of this magnitude will inevitably be followed by a reduction in appropriations. Further, with the increasing number of alternative schools in the next few years as little as 40 percent of the student population may be graduated from conventional comprehensive high schools. Greater numbers of students can be expected to use bypass mechanisms or to select from a wide variety of alternatives. The report also noted that the innovations in the schools from 1962-1972 have had little or no lasting effect on the content of school programs or the quality of teaching and learning. The innovations that ~~at~~ attracted the most funding from the U.S. Office of Education as well as from foundations include nongraded schools, programmed learning, individualized

instruction, computer assisted instruction and team teaching.

A major study of the Management Implications of Team Teaching is currently being sponsored by NIE at the University of Oregon. This is a longitudinal study of the implementation and effects of team teaching. About twenty schools adopting the multi-unit organization design in fall 1974 will be studied before implementation. A similar number of traditional schools are being studied in the same district as controls. Innovative measures of decision-making and teacher independence have been developed for the study, which seeks to verify findings of earlier research on the interaction of control structure, work structure and staff perceptions performance.

The U.S. Office of Education also launched a major project in North Dakota, Trainers of Teacher Trainers Program as part of the New School Program in North Dakota, 1968-1974. The program advocated an educational reform process with all parties having a stake in education. The experiment was intended to show that a teacher education program that included the active participation of professional educators and liberal arts faculty, as well as the active involvement of parents, teachers, and school administrators, should be more effective in bringing about lasting reform to the educational system of the State than an attempt to reform only one aspect of the system. The New School found traditional grading patterns to be inappropriate, and committed itself to a high degree of personalization, student initiative, and integrated learning as alternatives.

In 1973, the Organization for Economic Cooperation and Development published four volumes on Case Studies of Educational Innovation. Volume IV discusses

strategies for innovation in education. The point is emphasized that some innovations usually imply a redistribution of resources and a shaft in priorities. This has necessitated political decisions if the innovations are to be achieved to any substantial degree. The report further points out that any radical change in curriculum would have consequences beyond the individual school or school district. All schools eventually respond to educational, social and economic realities. What is needed, therefore, the report insists, is a national innovation policy which can redefine the nature, the objectives and the functions of education in its social and economic context.

The view that educational changes cannot be properly implemented in isolation from broader social problems and conflicts was also expressed in the Ford Foundation 1972 report, A Foundation Goes To School. Another important factor emphasized in the report was the awareness on the part of the Foundation that it had to contribute more to educational change than money: it had to pay more attention to the ways in which projects were conceived, organized and operated. The report noted that the main strategy in the comprehensive School Improvement Program was an attempt to change the educational structure through a process of teacher development. In summary, the report noted that innovations in staff utilization had proved the most successful and most permanent. Innovations in new curriculum materials and new technologies in some instances had lasting effect, while innovations in relation to the use of time and to student groupings were only temporary. These findings have implications for Federal policy.

Federal policy-makers are as concerned about communication of knowledge for educational improvements as they are about the innovations themselves. One of the cornerstone documents on dissemination and utilization was Planning

for Innovation (1967) by Havelock, which reviewed, interpreted and synthesized the findings of over 4000 separate documents on knowledge utilization. Other major interpretive works include the recommendations of the Research Advisory Panel on Innovative Processes in Education (1970-71); a number of planning papers for the National Institute of Education (1972); and the 1973 NIE report, Building Capacity for Renewal and Reform: An Initial Report on Knowledge Production and Utilization in Education (1973).

The NIE 1973 Report stated that the major strategy of the Institute was the development of a program of directed experimental studies to develop, test and disseminate approaches for building problem-solving capacities in the schools. The policy implications of the findings of these studies were to be the principal concern. ~~For example, if research findings indicate that~~

One of the challenges to the Federal role in education is the issue surrounding the equalization of access to societal resources through education. Economically, poor students tend be at a disadvantage in relation to traditional curricular, methodological, and achievement-test practices based on middle-and-upper class norms. Radicals who want to see immediate change advocate the use of out-of-school resources for educational purposes. The deschooling or non-formal education proponents stress the individual's freedom to pursue the learning of his choice without the institutional constraints embodied in credentials, grades, or diplomas.

In 1973 the International Council for Educational Development issued a report on Non-Formal Education for Rural Development: Strengthening Learning Opportunities for Children and Youth. The report describes non-formal education "as any organized educational activity outside the established formal system - whether operating separately or as an important feature of some broader activity - that is intended to serve identifiable learning clienteles and learning objectives." Emphasis was placed on the need for a truly massive and innovative effort which would require, among other things, fundamental changes in the attitudes of parents, teachers and administrators toward education. The report advocated an open-access learning system which must of necessity include a combination of formal, nonformal and informal educational components, effectively linked with local development needs and activities.

The Stanford Center for Research and Development in Teaching completed a study of The Impact of the Open-Space School upon Teacher Influence and Autonomy:

The Effects of An Organizational Innovation in 1971. The major findings revealed that as compared with teachers in traditional schools, teachers in open schools were more satisfied with their jobs, felt more autonomous, and reported more influence in making all kinds of decisions. To what extent will such findings influence the attitudes of Federal policy-makers as they plan intervention programs in teacher education?

A Michigan State University Study, Non-formal Education As an Alternative to Schooling (1974) considered means for determining alternatives to formal education. Eight structural elements that affect learning environments are listed: the age mix, and social composition of the adults and children; the nature of the reward structure; the proximity of the situation to action, meaningful work, use, and normal living; the timing of the experience with respect to employment; abstract versus concrete content; and the duration of relationships.

A major USOE study, The Impact of Special Services Programs in Higher Education for Disadvantaged Students, was concluded in 1975. Among the major conclusions drawn from the findings are (1) there is no evidence that availability of or participation in support services systematically improves performance; (2) institutional differences account more for differences in disadvantaged student success and satisfaction than do supporting services. The Higher Education Amendment of 1968 provided for support services on college and university campuses to facilitate the progress of disadvantaged young people. What might be the policy implications of these findings for the Federal Government in terms of new legislation?

S. M. Pemberton ca 1976